EMPIRE AIRLINES

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DEPT. OF TRANSPORTATION
DOCKET SECTION
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ORIGINAL

July 27, 1999

US Department of Transportation Dockets
Docket No. FAA- 1999-5401
400 Seventh Street SW
Room Plaza 401
Washington DC 20590

Re: FAA-19996401

To Whom it may concern:

Empire Airlines is a Part 121 Air Carrier operating one Shorts SD3-60, 12 Fokker F27s (eight Mk600 and four Mk500 variants) and one Fairchild F27F as a supplemental cargo carrier. The average fleet age is just over 30 years. Therefore, the NPRM Docket FAA-1999-5401 ; Notice No. 99-02 has caused us great concern as this will affect the entire Part 121 fleet. If we are forced to retire the fleet due to this Rule, the economic impact on Empire's business would be catastrophic. Although this letter will focus mainly on the Fokker F27, the philosophies discussed (as opposed to direct maintenance program comments) will apply across the board.

We are all concerned about the safety of aging aircraft, and applaud the FAA's efforts towards better surveillance of older fleets. However, there are some misconceptions written into this NPRM, along with some aspects which it appears the FAA has made it very dificult not only for the operators to comply, but for the FAA as well. We are therefore submitting this letter as our comment to this NPRM.

Section 447717 of Title 49 USC requires the FAA to perform inspections and records reviews of aging aircraft used by air carriers for air transport. It is unclear, however, what records reviews would be performed that are not already being performed by PMIs and ASIs on all our aircraft. We have not generated any additional inspection paperwork; there is nothing new to look at. In the body of this letter, you will see that the structural program for the Fokker fleet does not fall out of the AC 9 l-56 guidelines and we specifically request that the Fokker F27 be removed from the listing in the NPRM.

The code goes on to say that FAA inspections will be done on the aircraft in order "to decide whether the aircraft is in safe condition and maintained properly for operation in air transportation." The FAA in this instance is moving counter to all previous philosophies which require the Air Carrier to be responsible for maintenance and airworthiness of its aircraft, not a PMI or DAR. Empire Airlines has operated these F27 aircraft for over a decade, and we have yet to be assigned an FAA maintenance inspector who comes to us qualified on the airplane. How can the FAA mandate an airplane inspection without requiring the inspector to have some familiarity with that aircraft? Is additional money allocated for training? Aircraft reviews that we have performed with a PMI coincidentally with other projects have always taken the time of an additional Empire Inspector or Training Instructor to ensure the FAA personnel understand the aircraft. Furthermore, for an inspector to inspect an Empire aircraft, he must meet all qualification requirements of our FAR 121 Maintenance Policies and Procedures Manual. A structural inspector making decisions on whether the aircraft is in safe condition and maintained properly for operation in air transportation would have to qualify for Empire's Airworthiness Release and RII Inspector programs to be able to make such decisions.

As concerns structural inspections, we fail to see any added value; instead, we see a slowdown of the heavy check process and added expense. Who is going to pay this DAR for his or her time? Why would any operator accept this additional expense when he already has an acceptable inspection program? An FAA Inspector performing an F27 structural inspection would have to be current on eddy current, visual, ultrasonic and other inspection techinques.

The NPRM mentions that the FAA Inspector could require additional areas of an airplane to be opened. We see no reason for this, without solid reliability data or other driving factors. The FAA needs to define these reasons before we give an outside person carte blanche to decide what should be opened over and above the requirements of the normally scheduled maintenance. Our approved reliability program points out areas of the airplane that need attention, not just one inspector, unfamiliar with our program and the airplane, acting alone. If the FAA intends to proceed in this vein, clarification is needed on what parts of the airplane would be disassembled and what constitutes a "physical inspection."

The NPRM sets calendar deadlines for such inspections at three to five year intervals. Notwithstanding the FAA's comments on this problem in the NPRM, we suggest the wording be changed so intervals align in an efficiant and economic fashion with each operator's maintenance program. A "drop dead" or "no later than" date for the intial interval would be better than a date range of three to five years.

The 1993 version of the NPRM was dropped in part because of the 30 day advance notification requirement to the FAA of impending heavy checks. This NPRM reinstates that requirement but at a 60 day interval. This certainly does not eliminate the original complaints that normal surveillance of an operator's fleet would provide the FAA plenty of time for finding out details of a heavy maintenance schedule. This requirement creates an extra and unnecessary reporting burden on the operator. Such reports would normally be generated by nonregulated personnel and could unduly expose the carrier to regulatory action if it was inadvertently overlooked. No improvements to safety or the public interest could be served by adding this requirement. Collection of this kind of data will have no practical utility for the FAA.

In calculating cost estimates, the asumption that one half of all fleets affected by this rule seems very conservative. Why would an airplane, without having undergone a full structural evaluation it the beginning of its service life, remain unaffected by this program unless it was overbuilt, in other words built strong and heavy, in the first place? The logic appears flawed; more nearly 100% of all fleets affected by this rule would require some modifications. Some fleets would require less than others, but a higher number of affected fleets appears more likely. And although $100M in costs is a small amount by government standards, to our industry this is a huge economic burden that will surely put some operators out of business. Ensuing inspection and DAR costs will rise disproportionately as well, adding greatly to the costs per flight hour of lower utilization operators such as Empire.

The NPRM requires transport category aircraft to have incorporated into the maintenance program a Structural Integrity Program (SIP) which is based on damage tolerance principles. It goes on to specifically mention that the Fokker F27 does not have a damage-tolerance-based inspection program, rather that its program is based on AC 91-60 criteria which uses only service experience to establish structural integrity programs. This is not true; the F27 does indeed meet the requirements of a damage-tolerance-based program. The program has been mandated by AD for inclusion into the maintenance program for several years now and the certificate holder still supports the program. The FAA is cogniscent of this fact as it attended the Structural Working Group meetings for the F27 and was instrumental in the development of Fokker Report SE-178 which states that the SIP program meets AC 91-56 criteria (attachment).

Fokker performed full scale and detail tests as well as fatigue analysis (calculations) of the F27 primary structure during the original certification process on the F27. Such tests were performed to ultimate loads. The fatigue inspection requirements and structural life limits resulting from those tests were included in the SIP program. Fokker continues to add service experience, including stress corrosion, to the program. Fokker continues to evaluate the areas of concern, new designs and developments, and service experience

using damage tolerance assessments. This program is in compliance with the requirements of AC 91-56 (attachment).

Norman B. Martenson, Manager, Standardization Branch, Transport Aircraft Directorate, wrote in a November letter to C.W. van Santen, Department Head of Airworthiness in the RLD (Dutch civil airworthiness regulatory authority) that the FAA "concur that the Fokker SIP documents have been prepared and updated in accordance with the guidance contained in AC 91-56." (attachment)

As long as the operator maintains a maintenance program which meets all SIP requirements, the FAA should only have to perform normal surveillance of that operator and his fleet. As long as the aircraft manufacturer is involved and provides input and guidance to the operators' programs, further FAA involvement as mandated by this NPRM is inefficient, expensive, redundant and pointless.

Regards,

David Hartson
Director of Quality Assurance

attachments

STORK"

Fokker Services B.V.

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Addressee	:	Mr. Eric Barr
Department	:	Engineering
No. of Pages	:	1 (including this page)
From	:	Arie Bouman
Oats	:	April 22, 1999
Your Ref.	:	Yrfax
Our Ref.	:	TS99.54349
ATA-Chapter	:	
We **Copy**	:	J. Veenstra FS/TE H. Beumer FS/TA
Subject	:	**Fokker F27 - NPRM notice** 9842

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TELEFAX

The Aging Airplane Safety NPRM 99-02, dated April 2, 1999 **(Volume** 64, number 63, **page** 16297-16320), is currently under study at our Engineering department. Comments on this NPRM (if **any)** will be presented to the FAA before August 2, 1999.

Further we would like to make notice of the fact that the FAA accepted fhe F27 SIP-I document as being in compliance with the intent of FAA AC 91-56 "Supplemental Structural Inspection Program for **Large** Transport Category Airplanes". Also, the statements given in Fokker **report SE-278** (issue 4) with respect to damage tolerance requirements, are still valid.

Therefore we are in the opinion that the F-27 SIP-1 is fully in compliance with the proposed rule making.

Although we did not have direct contact with the FAA concerning the changes to FAR 121 regulations we will review all relevant NPRM's concerning the Fokker Aircraft.

Furthermore, Fokker Services will be an active member of the forthcoming AAWG-meetings in which topics like NPRM's will be discussed.

We trust **this** information meets your requirements.

Regards,

Arie Bouman
Fokker Services - Maintenance Recommendations
On behalf of Fokker Services Inc.

Fokker

U.S. Department of Transportation
Federal Aviation Administration

Transport Airplane Directorate
Aircraft Certification Service
1601 Lind Avenue S.W.
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NOV 1 ...

Mr. C. W. van Santen
Oepartment Head of Airworthiness
Rijksluchtvaartdienst (RLD)
Directorate-General of Civil Aviation
Aeronautical Inspection Directorate
P. 0. Box 575
2130 AN Hoofddorp
The Netherlands .

Dear Mr. van Santen:

This is in response'.to your letter LI/LW/93.8065, dated September 10, 1993, which requested the FAA to include the Fokker F27 Structural Integrity Program (SIP) Document No. 27438, Part I, and the Fokker F28 SIP Document No. 28438, Part I, i-n Appendix II of Advisory Circular (AC) 91-56, "Supplemental Structural Inspection Program for Large Transport Category Airplanes", dated May 6, 1981.

We have reviewed the compliance checklist submitted as an attachment to your letter, and concur that the Fokker SIP documents have been prepared and updated in accordance with the guidance contained in AC 91-56. Therefore, the FAA will include these documents in Appendix II of AC 91-56, when AC 91-56 is revised. However, the FAA is not planning to revise AC 91-56 'only to update appendix II, since the Supplemental *Inspection Documents (SIDs)have been mandated by Airworthiness Directives (ADs), which provided the notification intended by Appendix II.

Sincerely,

N. B. Martenson

Norman B. Martenson
Manager, Standardization Branch

STORK

Fokker Services B.V.

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Addressee	:	Mr. Eric Barr
Department	:	Engineering
No. of Pages	:	3 (including this page)
From	:	Arie Bouman
Date	:	May 7, 1999
Your Ref.	:	Yr fax
Our Ref.	:	TS99.54947
ATA-Chapter	:	
We Copy	:	J. Veenstra FS/TE H. Buimet FS/TA
Subject	:	**Fokker F27 - NPRM notice 99-02**

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TELEFAX

Please find enclosed the requested formal writing from the FAA regarding the F27 SIP-1 document.

In our opinion, until now, there is no formal requirement for the evaluation of existing repairs for small transport and commuter type aircraft (including the F27). Regarding the contents of the SIP-1 document , the following background information applies.

Fokker performed full scale and detail tests as well as fatigue analyses (calculations) of the F27 primary structure during the original certification process of the F27. The fatigue inspection requirements resulting from these tests and analyses are incorporated in the SIP-1 document

In the course of its operation, Fokker Services BV adds service experience, including stress corrosion, to the test evidence as the aircraft is still building up experience. The areas of concern, new designs and developments and service experience are evaluated using the current JAR/FAR 25.571 standards, including damage tolerance assessments. All fatigue and stress corrosion problems (known and anticipated) of safety concern (catastrophic and hazardous failure conditions), resulting from the analyses that require a repetitive inspection or a life limitation, are specified in the “inspection and retirement life task sheets” of the SIP-1 document.

The SIP-1 document is in compliance with the Federal Aviation Administration Advisory Circular 91-56, which provides guidance for developing a supplemental structural integrity program to ensure safe operation of older aircraft throughout their operational life.

The document has therefore been mandated by the RLD and by the FAA.

In principle all damage reports are evaluated by Fokker. Any crack report may result in adjustment of the original fatigue and damage tolerance analysis. Subsequently an amendment or refinement of the F27 maintenance program might be necessary to ensure continuing airworthiness of the F27 fleet. Cracks which affect the flight safety are included in the SIP-1 document.

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The SIP-I document was subjected to review by the F27 Structures Working Group (SVVG), and updated according to their recommendations. One of the tasks of this group of F27 operators, airworthiness authorities and Fokker specialists, was to review in-service experience with this document, i.e. review significant findings, inspectability (e.g. accessibility and inspection procedures) and inspection reliability (e.g. probability of crack detection and inspector fatigue). In addition, this group advised whether corrective actions were required in respect to this inspection program and document, **i.e. improved inspection methods and terminating modifications. All tasks** and actions resulted from this group have been laid down in Fokker report E-270.

The objective is to have the SIP-1 document updated regularly, to reflect the latest in-service experience and analyses, by means of a "general" revision. Inspections requiring immediate action from the operators are introduced by an Alert Service Bulletin, i.e. a one-time inspection- The intention is however, to have subsequent repetitive inspections, if applicable, included in the SIP-I document.

We trust this information meets your requirements.

Regards,

Arie Bouman
Fokker Services – Maintenance Recommendations
On behalf of Fokker Services Inc.

I.A. Introduction.

As a result of the Federal Aviation Administration (FAA) sponsored 'International Conference on Aging Aircraft' in June 1938 (Reference 1), the Air Transport Association (ATA) and the Aerospace Industries Association of America (AIA) initiated a comprehensive program to define and recommend actions required to ensure the structural integrity of aircraft throughout their economic life.

In order to implement the program, the ATA and AIA established an Airworthiness Assurance Task Force (AATF) with representatives from aircraft operators, manufacturers? regulatory and other aviation authorities (NASA, USAF, FAMA). The AATF identified three major areas to be investigated in order to quantify the requirements for the continued structural integrity of aircraft throughout their economic life.

1. Product-specific service actions and recommendations.'
2. Research and development requirements.
3. Human factors issues associated with the aging aircraft maintenance.

Shortly after the meeting in June 1Y33 the Regional Airline Association (RAA) and the General Aviation Manufacturers Association (GAMA) organized a conference devoted to smaller regional airplanes. This conference was held in Kansas City from April 25 to April 27, 1989 (See reference R2.)
One of the airplanes selected for evaluation was the F27.
As at that time no AATF type organization was established for the smaller aircraft, Fokker initiated a Fokker F27 Structures Working Group (SWG) to evaluate the F27 as far as the product - specific service and recommendations were concerned.
This Working Group first met in February 7 and 8, 1990.
It was agreed to follow the same working procedures as used on the Fokker F28 airliner.

This meant that the SWG had to address five basic elements:

1. Review of Service Actions which depend on special repetitive inspections to maintain structural integrity of the aircraft and determine which to recommend for incorporation of terminating actions to eliminate the special repetitive inspections.
2. Review and recommend improvements to the corrosion-preventive programs.
3. Review and recommend means of improving the quality of structural repairs currently on aircraft.
4. Review and recommend improvements to the Routine Maintenance Programs.
5. Review the Supplemental Inspection Documents (SID) for effectiveness.

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